

Next generation Italia: Innovative doctorates for public administration and cultural heritage

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Abstract – In the framework of *Italian Recovery and Resilience Plan* (hereafter NRRP) an important boost to research in the cultural heritage sectors came from the activation of cycles of national innovative doctorates for public administration and for cultural heritage, as from the academic year 2022/23 and for the following academic years 2023/24 and 2024/25. They are envisaged within the reform of doctorates encouraging the establishment of new research courses, simplifying procedures and opening up public-private partnerships to promote the establishment of doctorates of national interest and benefiting. To help achieve this goal, 600 doctoral scholarships for cultural heritage are planned (200 for each academic year), within the investment 4.1 'Extension of the number of research doctorates and innovative doctorates for the Public Administration and cultural heritage'. The Directorate-General Education Research and Cultural Institutes (Ministry of Culture) in collaboration with the Ministry of University and Research and the National Council of Research, worked on the drafting of the new curricula for cultural heritage doctorates: a unique opportunity to balance the interests of protection and enhancement at the level of heritage management with those of research and innovation, to create a system that is able not only to feed on the results, but also to empower the skills required to meet the new challenges of and for cultural heritage.

Key words – archaeology; Italy; Recovery and Resilience Plan; NRRP; higher education; cultural heritage; public administration

Titel – Eine neue Generation in Italien: Innovative Dissertationen für die öffentliche Verwaltung und das kulturelle Erbe

Zusammenfassung – Im Rahmen des italienischen Konjunkturprogramms (Recovery and Resilience Plan, im Folgenden NRRP) wurde die Forschung im Bereich des kulturellen Erbes durch die Aktivierung von Zyklen nationaler innovativer Doktorate für die öffentliche Verwaltung und das kulturelle Erbe ab dem akademischen Jahr 2022/23 und für die folgenden akademischen Jahre 2023/24 und 2024/25 erheblich gefördert. Sie sind im Rahmen der Promotionsreform vorgesehen, die die Einrichtung neuer Forschungsstudiengänge, die Vereinfachung der Verfahren und die Öffnung von öffentlich-privaten Partnerschaften vorsieht, um die Einrichtung von Promotionen von nationalem Interesse und Nutzen zu fördern. Um dieses Ziel zu erreichen, sind 600 Promotionsstipendien für das kulturelle Erbe vorgesehen (200 für jedes akademische Jahr), und zwar im Rahmen der Investition 4.1 "Ausweitung der Zahl der Forschungspromotionen und innovativen Promotionen für die öffentliche Verwaltung und das kulturelle Erbe". Die Generaldirektion Bildung, Forschung und Kulturinstitute (Ministerium für Kultur) hat in Zusammenarbeit mit dem Ministerium für Universität und Forschung und dem Nationalen Forschungsrat an der Ausarbeitung der neuen Curricula für Promotionen im Bereich des kulturellen Erbes gearbeitet: eine einmalige Gelegenheit, die Interessen des Schutzes und der Aufwertung des kulturellen Erbes auf der Ebene der Verwaltung des kulturellen Erbes mit denen der Forschung und der Innovation in Einklang zu bringen, um ein System zu schaffen, das nicht nur in der Lage ist, die Ergebnisse weiterzugeben, sondern auch die Kompetenzen zu fördern, die erforderlich sind, um die neuen Herausforderungen des kulturellen Erbes zu meistern.

Schlüsselwörter – Archäologie; Italien; Wiederherstellungs- und Resilienzplan; NRRP; Hochschulbildung; Kulturerbe; öffentliche Verwaltung

The National Recovery and Resilience Plan represents in Italy an extraordinary opportunity to relaunch the country. Investment in culture, education and research is considerable. Mission 1 'Digitisation, Innovation, Competitiveness, Culture and Tourism' and Mission 4 'Education and Research', two of the six planned by the NRRP, in particular, aim on one hand to increase the level of attractiveness of the country's tourism and cultural system through the modernisation of infrastructures; on the other hand, to strengthen the conditions for the development of a knowledge-intensive, competitive and resilient economy, strategically aiming, at among other things, also on the reform and expansion of research doctorates which this paper focuses on.

The funds of Mission 4 Education and Research are managed by the Ministry of Universities and Research, in agreement with the Ministry

of Culture for the part of doctorates dedicated to cultural heritage (fig. 1).

The reform of research doctorates focuses on encouraging and simplifying the involvement of other institutions along with universities, improving measures dedicated to the construction of doctoral courses not only addressed at academic career. Consistently with these aims, in the NRRP is established an investment of 432 million euros in order to increase the number of grants for those doctoral researches which are related to an enhancement of public administration actions and to the cultural heritage management. The goals of this investment are the increase of human capital engaged in research-oriented activities in public administrations, through 1,000 new doctoral grants for each of the three doctoral cycles from Academic Year 2022/23 to 2024/25.



Fig. 1 NRRP – National Recovery and Resilience Plan – Mission 4 “Research and education”.

Likewise, in agreement with the Ministry of Culture, another objective is to improve the efficiency of the management and the development of our cultural heritage, in this case through 200 new scholarships for each cycle (fig. 2).

The eligibility criteria for doctorates in cultural heritage include:

- periods of study and research in companies, research centers, or public administrations, including of course the Ministry of Culture institutes, from a minimum of six to a maximum of twelve months;
- periods of study and research abroad, from a minimum of six to a maximum of eighteen months;
- the possibility for the student to take advantage of qualified and scientific structures for study and research activities. In this case, the Ministry of Culture will play an important role;
- the exploitation of open access to research results in the shortest time and with the least possible number of limitations, in accordance with the principles of Open Science and FAIR Data.¹

As mentioned above, the NRRP has included not only the enlargement, but also the reform of doctorates as one of the objectives of Mission 4. Moreover, the reform establishes that universities can apply for accreditation of courses also in an associated form with public administrations, among the

others (Art. 3, paragraph 2, letter e, of Ministerial Decree 226/2021), which is a key point for our Ministry of Culture through the Directorate-General for Education, Research and Cultural Institutes that perform functions and tasks relating to the coordination, development and evaluation of education programs, training and research in the fields pertaining to the Ministry.

Of more general relevance, reform recommendations (Art. 11 of Ministerial Decree 226/2021) about doctorates of national interest. In this case they must:

- a) contribute to the progress of research in the priority areas of action of the National Plan, including those related to cultural heritage [...];
- b) provide agreements or establishment of consortia between several universities, as well as with research institutions, including the foreign ones;
- c) provide shared coordination and planning activities between one university and at least four Institutions among which other Universities, Research Institutes, Academies and Conservatories, Private Companies, and of course Public Administrations;
- d) provide at least thirty scholarships per doctorate cycle [...].

The innovations introduced by this reform along with the possibilities offered by the NRRP have



Fig. 2 NRRP – National Recovery and Resilience Plan – Investment 4.1 “Innovative doctorates”.

driven a path through the definition of the first national doctorate in Heritage Science (PhD-HS.it), also with the contribution of Directorate-General for Education, Research and Cultural Institutions. Heritage Science is an interdisciplinary research area, based on skills from different disciplines: humanities (archaeology, philosophy, philology, geography, art history), social sciences (economics, sociology), hard sciences (chemistry, physics, geology, mathematics) architecture, computer science, and engineering.

For this purpose, it was fundamental the initiative of National Council of Research with a first network of universities that have begun the initial definition of interdisciplinary curricula.

Indeed, the national doctorate in heritage science (PhD-HS.it), coordinated by the University of Rome “Sapienza”, aims to overcome the fragmentation that currently characterizes the system of higher education in Cultural Heritage fields. It aims to create a new generation of researchers and professionals capable of collaborating in the most prestigious European and international contexts. To this goal, the national doctorate in Heritage Science (PhD-HS) will promote a cross mobility of Ph. D. students and teachers within institutions, which share the same *curriculum* and, possibly, towards those of other different *curricula*.

In addition, connections to European research infrastructures working in the field of heritage science will be promoted. Among the main ones, the European Research Infrastructure for Heritage Science in which Directorate General will also be active.

The eleven curricula of the National Doctorate in Heritage Science, collectively outlined, have the characteristic of being interdisciplinary, combining humanistic knowledge with technological innovation and covering a wide range of knowledge and skills specific of the cultural heritage sector, from archaeology to artificial intelligence, from art history to applied physics to the study of materials, from museology to environmental sciences, from communication to cultural accessibility, etc. (fig. 3).

Total for the Academic Year 2022/23, the national doctorate in Heritage Science offered 91 scholarships (79 scholarships funded by DM 351/2022; 3 scholarships with DM 352/2022; 9 funded by extra NRRP, 6 by universities and 3 by CNR). Following were some other significant numbers: 47 scholarships out of the 200 total cultural heritage scholarships funded by the National Plan; 22 scholarships out of a total of 1000 grants for Public Administration; 9 scholarships out of a total of 1200 grants for specific research for the NRRP; 37 participating universities by



Fig. 3 Eleven curricula of the doctorate in Heritage Science (PhD-HS.it), funded by the NNRRP – National Recovery and Resilience Plan.

agreement in total; 10 main Italian universities to guide the 11 *curricula*.²

National Research Council with the Institute of Heritage Science, the National Institute of Nuclear Physics and the Ministry of Culture are also involved and in particular the Directorate-General has the role of coordination, development and evaluation of education, training and research programs.

All *curricula* are interdisciplinary by design. Even though, each *curriculum* covers specific areas of interest related to emerging issues in the field of cultural heritage, which require knowledge and skills of high technical and scientific profile. Among the main topics, the conservation of Cultural Heritage through advanced diagnostic methodologies and the analysis and development of new materials compatible with the cultural object, able to combine safety for the operator, as well as environmental and economic sustainability are fundamental.

Moreover, innovative restoration methodologies are also dedicated to the complex challenges posed by the preservation of contemporary art, joined by innovative digital documentation systems.

Interdisciplinary methodologies and techniques are linked to the architectural heritage, to the recognition of its features linked to historical, artistic, technological and social values.

Optimization of microinvasive laboratory investigation techniques and development of non-invasive diagnostic techniques for knowledge, conservation and management of cultural heritage *in situ*.

Enhanced study of the material nature of archaeological artefacts and of historical and artistic interest will be integrated with chemical-physical investigations and with the study of technologies and production techniques.

A global study of stratified landscapes through the integrated use of archaeological and other sources, with the use of archaeometry, bio-archaeological and environmental sciences, informatics, and territorial diagnostic technologies.

And again, transdisciplinary training to define, understand, manage, and communicate Cultural Heritage contexts with the aim to develop guidelines and procedures for its management.

The national doctorate in heritage science looks with interest to research and studies on the methodologies of Digital Imaging; analysis of Big Data; techniques and platforms for storage and visualization of Big Dataset with a focus also on legal aspects related to the production, transmission, access, storage and digital archiving of documents.

Lastly, attention to educational design models that ensure engagement and inclusion, and to sys-

tems for socio-economic development and regeneration of the territories on a cultural basis.

PhD-HS aims at fostering coordination, overcoming the fragmentation of the higher education system in the field of research applied to cultural heritage and creating a new generation of researchers and professionals working in the field, able to collaborate and compete in the context of the most prestigious European and international initiatives. For this reason, PhD-HS provides for the mobility of PhD students and teachers between the different locations within the same curriculum and, when possible, between multiple *curricula*.

European research infrastructures are the ideal place to train new generations in a highly interdisciplinary and excellence-driven environment. The use of the facilities of the research infrastructures by PhD students and their involvement in their activities is promoted. The sector operates an ecosystem of research infrastructures recognised at European and global level and included in the ESFRI Roadmap (European Strategy Forum on Research Infrastructures) such as: E-RIHS³ (European Research Infrastructure for Heritage Science, formerly IPERION CH.it) and DARIAH ERIC⁴ (Digital Research Infrastructure for the Arts and Humanities European Research Infrastructure Consortium).

Themes selected after the calls for application published by University "Sapienza" of Rome in summer 2022 and 2023 are several: from ArcheoBIM to chemical diagnostics in museums and archaeology; from characterization of archaeological and fossil human and faunal remains to new methods for the virtual simulation of archaeological contexts; from participatory museum for intercultural development to advanced geomatic techniques for Cultural Heritage surveying, modeling and monitoring and nanostructured and environmentally sustainable fluids for cleaning artworks.⁵

These are, of course, areas and competences of great interest to the Ministry of Culture for the actions of management, enhancement, knowledge and conservation of the cultural heritage, entrusted not only to public administrations but also to other institutions which, in different ways, participate in its protection and transmission. The Directorate-General for Education, research and cultural institutes have also formally defined its commitment to coordinating research and training activities at the Institutes of the Ministry of Culture, in particular with regard to restoration-related activities, at the laboratories of the

three central institutes for restoration. At the central level, in agreement with all the participating universities and institutions, in addition to the actions of direction and supervision, the office will contribute to results of research dissemination, also to reinforce knowledges and skills required to face new emerging challenges in the sector.

In addition, within the scope of doctorates in agreements, the Directorate General for Education, Research and Cultural Institutes has also joined the call of the University of Tuscia, for a Doctorate in Historical Sciences and Cultural Heritage. As settled in the agreement with the University, a place for employees of the Ministry of Culture is saved, with the maintenance of remuneration. The proposed course promotes a qualified and innovative research in the field of historical-social sciences and cultural heritage, which explores the history of human societies and material and intangible cultural production, specifically artistic. In July 2022, the University of Tuscia published a call for a Ph.D. Program in History and Cultural Heritage, financed by NRRP funding with one place reserved to civil servants of Italian Public Administrations, with research in the field of History and Cultural Heritage from Antiquity to the Contemporary Age. The project awarded was presented by a civil servant working as a restorer of cultural heritage at the Archaeological Park of Cerveteri and Tarquinia with the following title: *"The Necropolis of the Monterozzi of Tarquinia: development of an experimental plan for the planned maintenance and promotion of mural painting through the study of technique execution technique and the computerisation of data"*. The call has been renovated in 2023 with the reserve of two places, without grant, dedicated to employees of the Ministry of Culture for course attendance Ph.D in Scienze storiche e dei beni culturali, XXXIX cycle, on the theme *"Sustainability for cultural heritage"*.

To sum up, the Directorate general is deeply involved in the process of reforming the doctorates themselves, with national doctorates and doctorates in the agreement. With the participation of the local institutes of the Ministry of Culture that will host PhD students in research projects of common interest, we will also have the task of monitoring and helping to guide their development.

More generally, the Ministry of Culture plays a key role, for all the 600 doctoral grants for cultural heritage provided by the NRRP, in collaboration with the Ministry of Universities and Research.

A process that is just at the beginning and that we will analyse in its becoming and in its future outcomes, also in an increasingly necessary comparison with similar European paths.

Notes

¹ FAIR data are data which meet principles of Findability, Accessibility, Interoperability, and Reusability.

² For an in-depth analysis of the research objectives of the curricula, you can consult the call at the following links: Sapienza, Roma (11.11.2023): https://phd.uniroma1.it/web/DOTTORATO-NAZIONALE-IN-HERITAGE-SCIENCE_nD3864_IT.aspx <https://phd.uniroma1.it/web/concorso38.aspx?i=3864&l=IT> [14.11.2023], and Sapienza, Roma (25.7.2023): <https://phd.uniroma1.it/web/concorso39.aspx?i=3864&l=IT> [14.11.2023].

³ See E-RIHS.it (Website): <http://www.e-rihs.it> [14.11.2023].

⁴ See DARIAH-EU (Website): <https://www.dariah.eu> [14.11.2023].

⁵ See Sapienza, Roma (2023): Dottorato in Dottorato Nazionale in Heritage Science: https://phd.uniroma1.it/web/DOTTORANDI-DOTTORATO-NAZIONALE-IN-HERITAGE-SCIENCE_nI3864_IT.aspx [14.11.2023].

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